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A1M MDC  
E1D DDJ2 DF109

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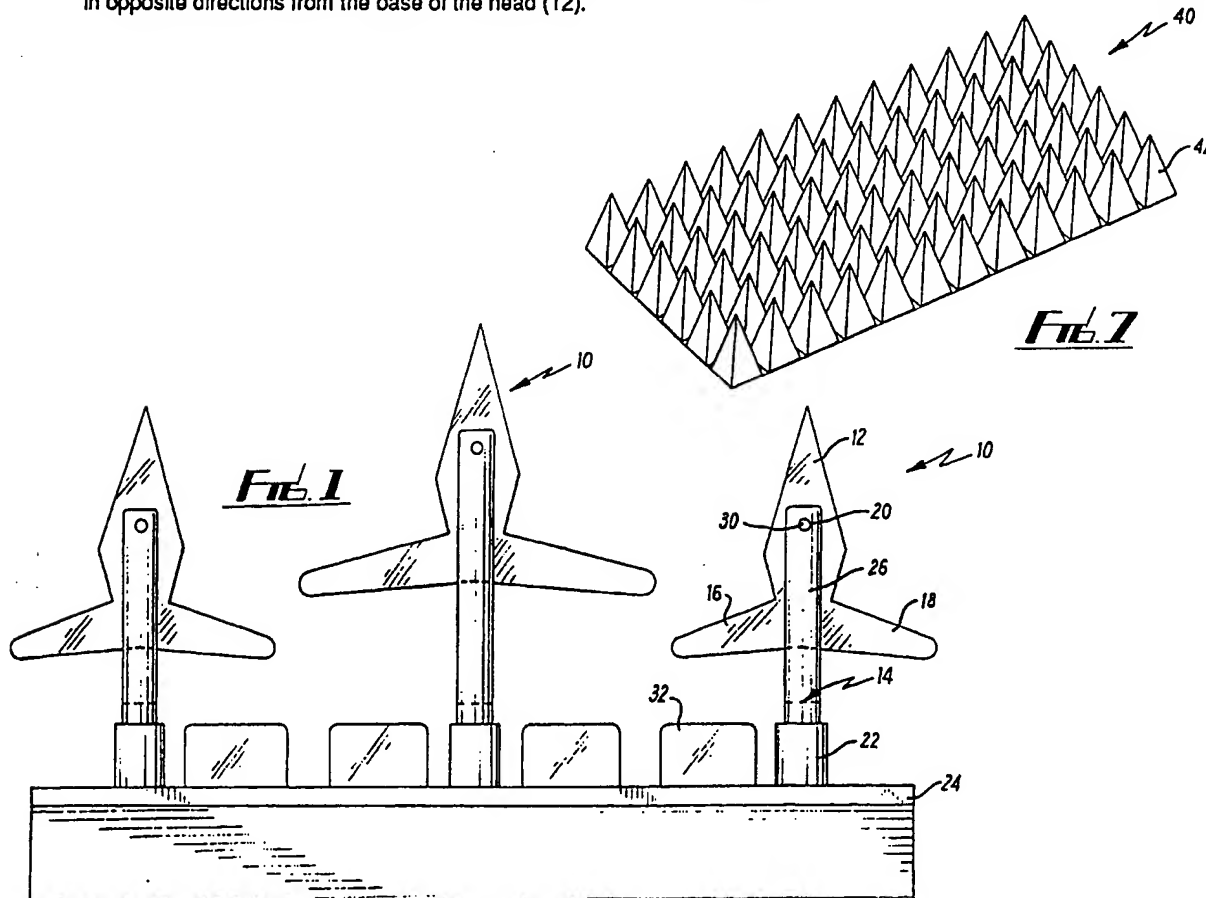
GB 2249013 A GB 2194566 A GB 2185173 A  
GB 2153644 A GB 0864298 A EP 0300936 A  
US 4269008 A

(58) Field of search

UK CL (Edition L) A1M MDC, E1D DF109  
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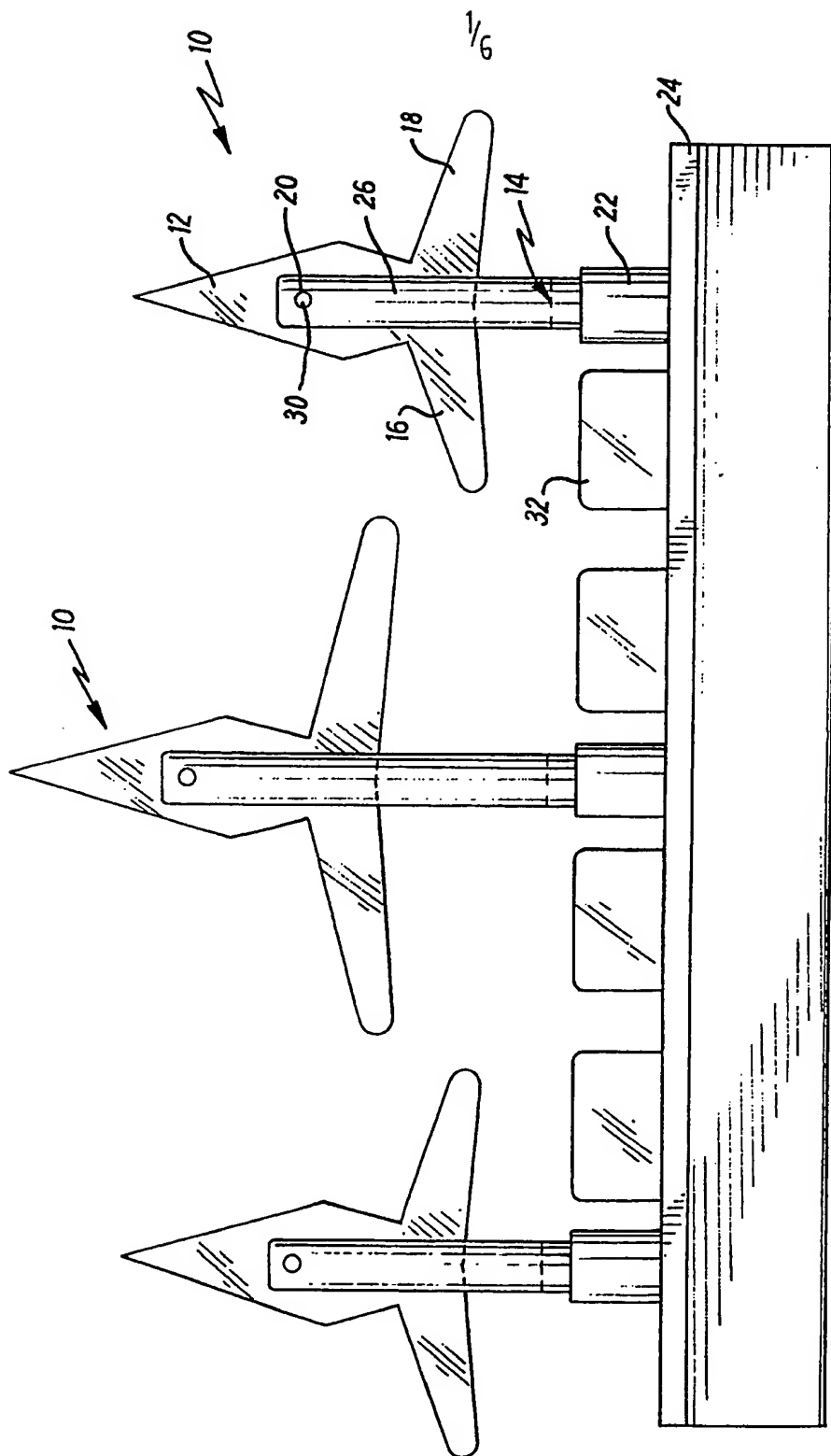
(54) Animal deterring apparatus

(57) An animal deterring apparatus, particularly for use in keeping birds away from roof tops, comprises an array of closely arranged cones (42) vacuum formed from a piece of plastics material. In an alternative embodiment of the invention the apparatus comprises a pivotally mounted body having a diamond shaped head (12) and horizontal limbs (16, 18) extending in opposite directions from the base of the head (12).



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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**Fig. 1**

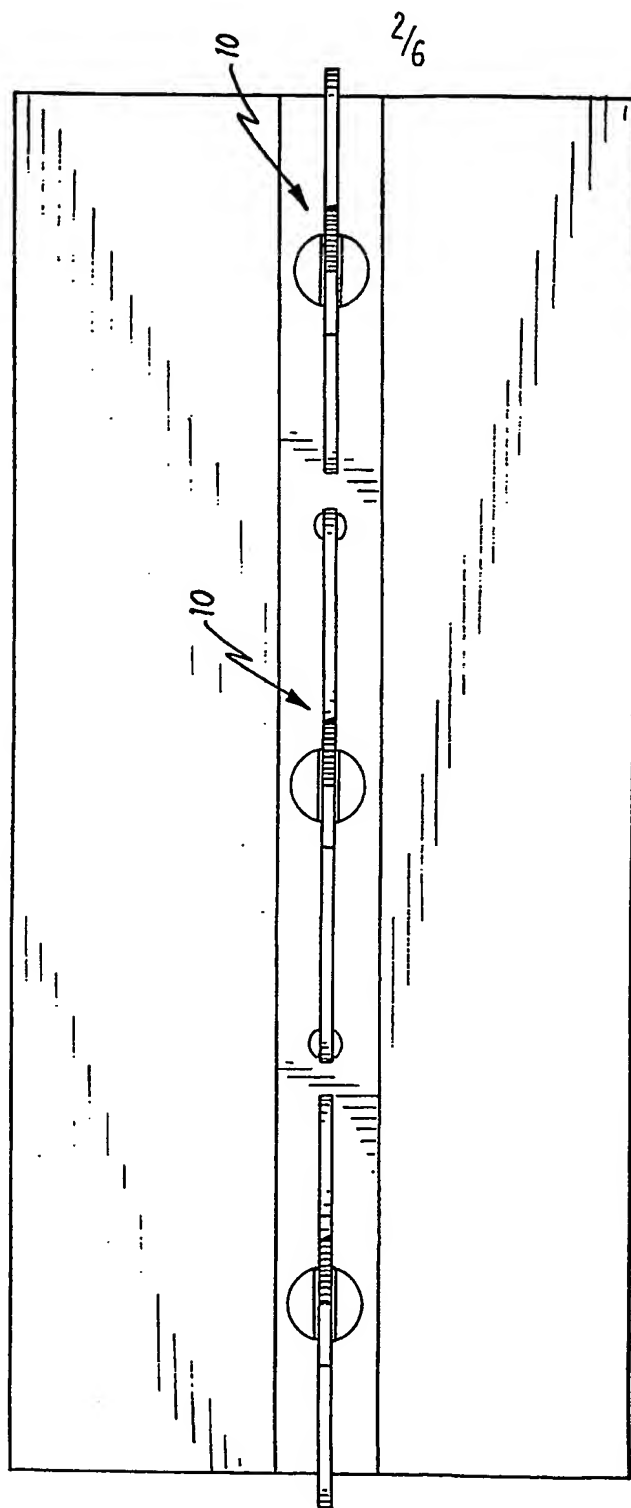


Fig. 2

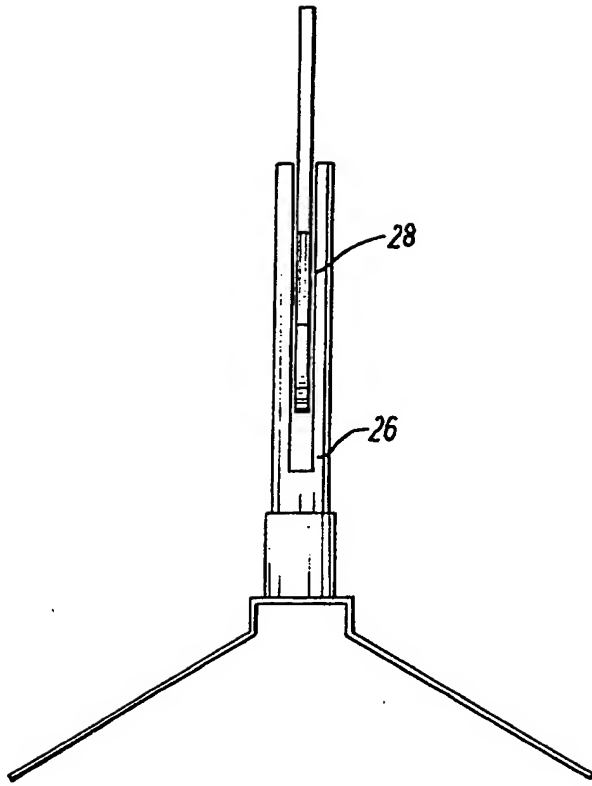


FIG. 3

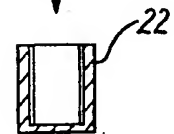
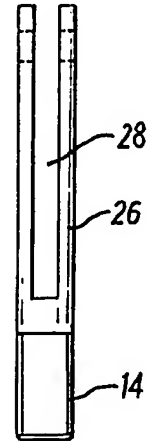
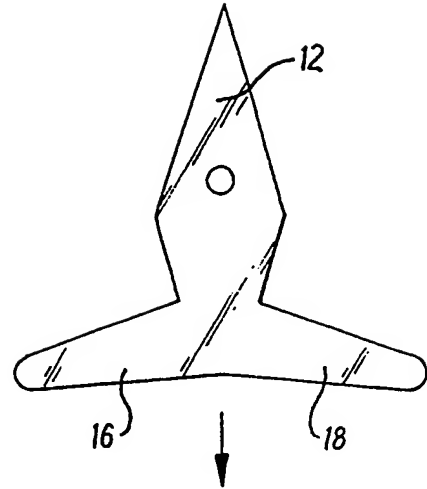
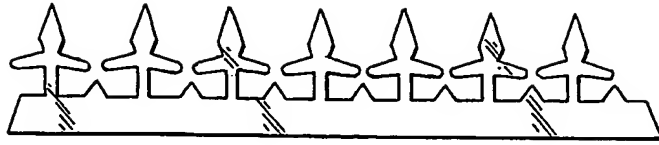
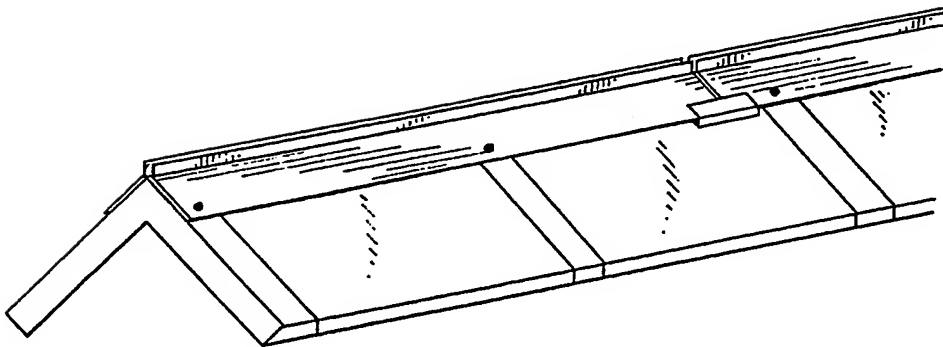


FIG. 4

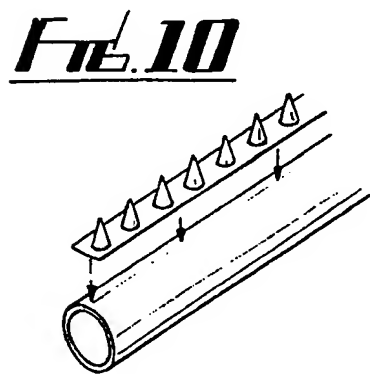
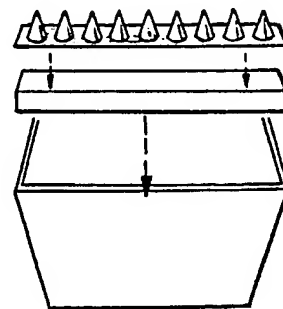
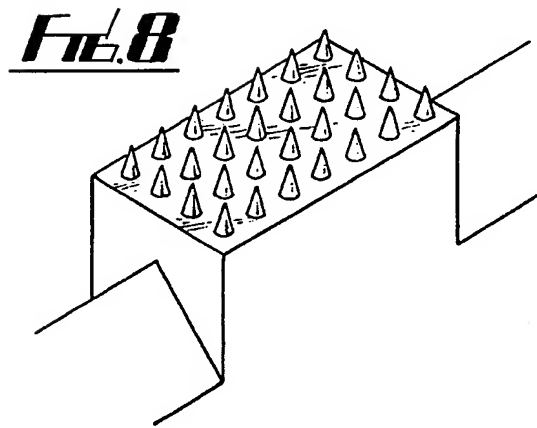
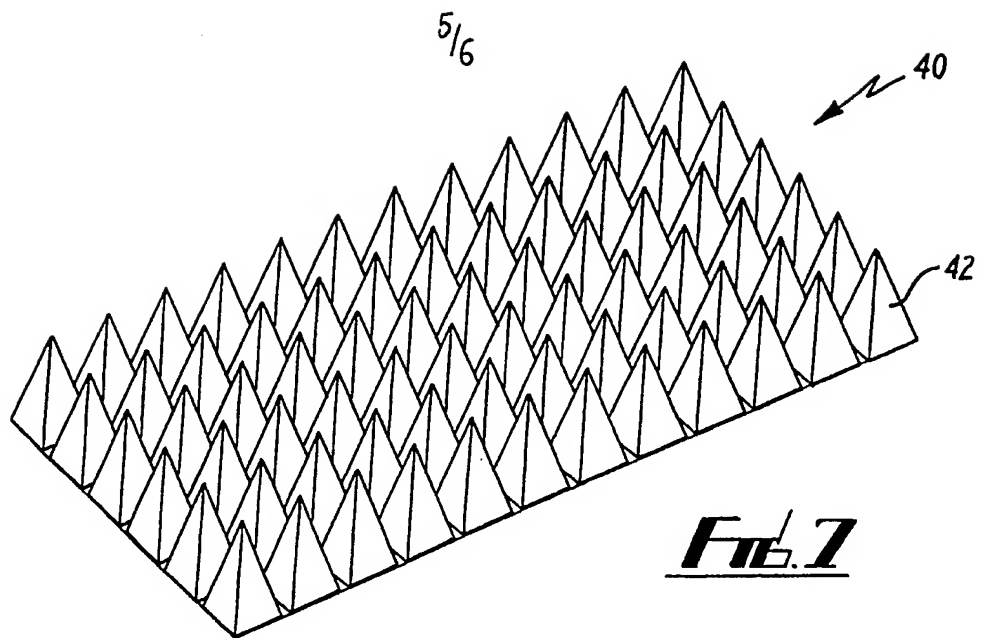
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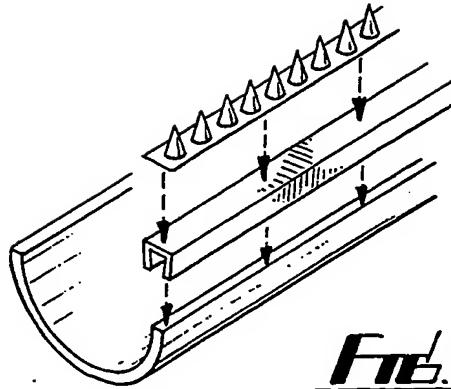
**FIG. 5**



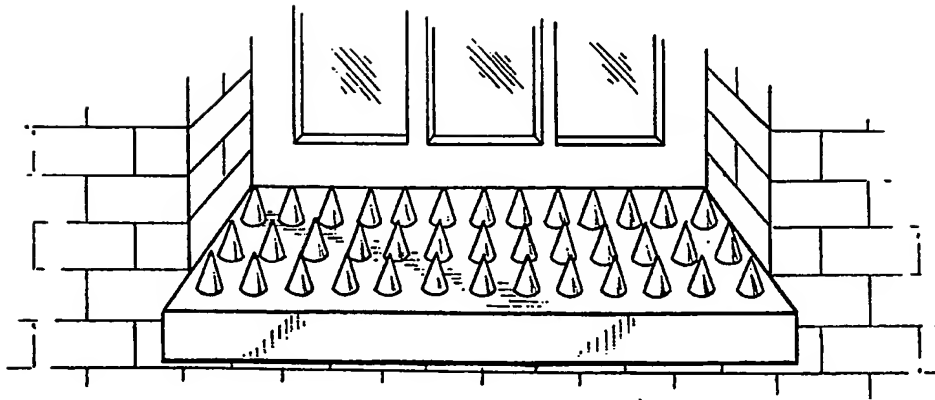
**FIG. 6**



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**Fig. 11**



**Fig. 12**

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ANIMAL DETERRING APPARATUS

This invention relates to an animal deterring apparatus and more particularly, but not exclusively to an apparatus for deterring birds from sitting on any building, for example on the roof tops of the buildings.

The problems associated with a large number of pigeons sitting on a roof are well known. A large number of droppings soon accumulate on the roof and in the guttering leading to a costly cleaning exercise being required on a regular basis.

It is known to secure a net above the roof in an attempt to keep the pigeons away. However, this is often very expensive and does not prove particularly effective. The birds may become caught in the net and may be injured when trying to escape. Furthermore the net is not aesthetically acceptable.

It has been suggested to deter animals by using an apparatus comprising a number of pointed wire spikes. Such arrangements of spikes are not aesthetically pleasing. Furthermore the spikes will injure any bird which lands thereon.



The present invention seeks to provide an aesthetically pleasing and humane animal deterrent.

According to a first aspect of the present invention there is provided an animal deterring apparatus comprising a plurality of elongate members arranged in the same general direction, said elongate members comprising a pointed part having a blunt end.

The members are preferably triangular in cross section having a blunted part or tip at their top. The animal deterring apparatus may comprise plastics material which may be vacuum formed from plastics material such as a sheet of high impact polystyrene. The number of members per unit area may be varied depending on the animal which is to be deterred. In order to deter birds the spacing between adjacent members is preferably in the range from 5mm to 2cm and is more preferably about 1cm. The height of the members is preferably at least 1cm and preferably in the range from 1cm to 2cm. Ideally the height of the members is about  $\frac{1}{2}$ " (1.27cm). The rounded parts are preferably spaced by about  $\frac{3}{4}$ " (1.9cm). The members are preferably stationary when arranged close together for example about 5cm apart or less. The members preferably comprise cones or pyramids extending from a base layer. The material may be cut to shape for application to any part of a building or other

structure such as ledges, parapets, pipes, hoppers, electrical boxes, bridges and guttering. The apparatus may be connected to thin edges of for example a gutter, by way of a clamping arrangement. The apparatus may be provided in any colour so as to match the appearance of its surroundings.

Alternatively, usually when the spikes are arranged further apart than 5cm the animal deterring apparatus comprises a plurality of supports for mounting the apparatus on a further structure and spiked bodies mounted for movement about a pivot provided on each support.

According to a second aspect of the present invention there is provided an animal deterring apparatus comprising a support for mounting the apparatus on a further structure and a body mounted for movement about a pivot provided on the support.

In a preferred embodiment of the invention the body is mounted for limited pivotal movement. The support may be connected to the transverse centre of the body. The body may comprise a diamond shaped head having a rounded tip extending above the support and the pivot connection.

Preferably the apparatus comprises two limbs which

extend in opposite directions. The two limbs may extend from the head.

The apparatus is preferably used on a ridge tile. The arms may be arranged to extend parallel with the ridge tile. Movement of the body is preferably in the direction in which the arms extend. Should a bird land on the apparatus causing movement thereof it is preferable that the movable body eventually returns to its original position once the bird has flown away.

The support may comprise a rod having a slit therein for receiving the body. The support or rod may be located in a base part which comprises means for connecting the apparatus to a further structure such as a tile. The apparatus may be made from plastics material such as UPVC. The material may be reflective. Intermediate devices may be located between adjacent apparatus.

In order that the invention may be more readily understood a specific embodiment thereof will now be described by way of illustration only with reference to the accompanying drawings in which:-

Fig. 1 is a side elevation of an apparatus in accordance with the first aspect of the invention including three animal deterring apparatus of the

second aspect of the invention;

Fig. 2 is a plan view of the animal deterring apparatus of Fig. 1;

Fig. 3 is a side elevation of the animal deterring apparatus of Figs. 1 and 2;

Fig. 4 shows construction detail of one of the animal deterring apparatus of Figs. 1 to 3;

Fig. 5 shows a further embodiment of the invention;

Fig. 6 shows a manner of fitting the embodiments of Figs. 1 to 5 to a ridge tile;

Fig. 7 shows an apparatus in accordance with the first aspect of the invention; and

Figs. 8 to 12 show the apparatus of Fig 5 when in use.

Referring to Figs. 1 to 4 an animal deterring apparatus 10 comprises a head 12 mounted on a support 14. The head 12 comprises a diamond shaped body having two legs 16,18 extending in substantially opposite directions from its base. An aperture 20 is provided

through substantially the centre of the head 12.

The support 14 is in two parts and comprises an internally threaded collar 22 located on a universal plate fitting 24 for ridge tiles and a shaft 26 adapted to be threadedly received in the collar 22. Alternatively the shaft 26 can be a push fit into the collar 22 and can be secured into the collar by an adhesive, if desired. A slot 28 is provided through the shaft 26, the slot 28 being open sided and open ended at the end of the shaft 26 which is remote from the thread. The head 12 is mounted for movement on the shaft 26. A pin 30 extends through holes provided in the shaft and the aperture through the head 12. The head 12 can therefore move about this pin 30 which acts as a pivot. A number of these apparatus 10 are spaced apart along the universal fitting 24 for the roof tile. The apparatus 10 are spaced such that any moving leg 16,18 will not impact with a leg 16,18 of a further apparatus 10. Intermediate fins 32 are provided between the adjacent apparatus 10. In the illustration shown the central apparatus 10 has a larger span (160 mm) in side elevation than the adjacent apparatus (120 mm) and is also located above the other apparatus. However, adjacent apparatus may be of the same type and of the same shape if desired. Adjacent apparatus are spaced apart sufficiently.

It has been observed that pigeons tend to stand on the ridge of roof tiles and therefore it is highly desirable that the apparatus of the present invention be located on the ridge.

In use a pigeon hopes to land on the ridge or move onto the ridge once it has landed on the roof. The intermediate fins 32 provided between the apparatus of the invention prevent the pigeon comfortably sitting below the legs of the apparatus. Thus if pigeons wish to settle they must sit on the apparatus itself. The top of the head 12 is pointed and therefore the pigeons will naturally attempt to sit on the legs 16,18. However, on jumping onto the legs, the legs 16,18 will swing downwardly frightening the pigeon and the pigeon will fly away to land somewhere else.

By locating the apparatus of the invention along the ridge tiles of a roof the pigeon will have nowhere comfortable to sit and will tend to sit elsewhere. It is noted that the apparatus of the present invention can be located in other locations as well as on ridge tiles and will also deter other animals such as cats settling where they are not wanted.

It is noted that the apparatus described above can be mounted on a gutter or window ledge instead of the ridge tile of a roof as previously mentioned.

The apparatus is easy to clean and maintain.

Fig. 5 shows a further embodiment of the invention similar to that shown in Figs. 1 to 4. The apparatus is supplied in a 1m length weighing about 1kg. The overall height is 210mm and the height from the ridge is 160mm. The arrow heads are made from grey UPVC, the fittings being made from stainless steel. It can be seen that seven arrow heads are provided per metre. If the apparatus is to be used to deter larger birds such as gulls, then only five arrow heads would be provided per metre.

Fig. 6 shows a means for fitting the apparatus of Fig. 5 to a ridge tile. In order to fit the apparatus it is positioned at one end of the ridge so that it fits squarely on the ridge tiles. Holes are drilled into tiles and stainless steel fasteners are inserted therein. The individual sections of the apparatus are then fastened together using two connectors which are held in place with adhesive.

Referring to Fig. 7 an animal deterring apparatus 40 comprises a plastics sheet which has been vacuum formed from high impact polystyrene to provide an array of cones 42. Adjacent cones are spaced apart by substantially 1cm. The height of the cones is about

1.5cm. The apparatus may be secured to any construction such as roof tops and bridges, for example by using adhesive. The apparatus is preferably made from high impact UPVC. The material is durable through a temperature range of -20°C to 80°C. The material is also readily washable. The apparatus may be made from any colour plastics material.

The tips of the cones are not sufficiently large for birds to rest their feet thereon. If the birds place their feet between the cones then the cones protrude into their body leading to discomfort. Also if the bird's claws rest between the cones, the cones tighten against the sides of the claws. Not only does the apparatus deter birds from resting thereon, but it also prevents birds and rodents from walking on the surface. The size and separation of the cones is chosen for maximum discomfort to the bird. The birds therefore tend to fly away and rest elsewhere.

Such apparatus is very effective in deterring birds and cats. The apparatus may be supplied in various lengths and widths and may be cut to any required shape.

Figs. 8 to 12 show the apparatus of Fig. 7 when in use. Fig. 8 shows the apparatus on a church parapet, Fig. 9 on a hopper, Fig. 10 on a pipe, Fig. 11 on



guttering and Fig. 12 shows the apparatus in use on a windowsill. In many applications the apparatus may be cut to size, when appropriate, and secured in position by way of adhesive. The apparatus may be secured to a backing material for increased rigidity. In some applications for example as shown in Fig. 11 the apparatus is secured to a clamping arrangement for securing the apparatus in place. This may comprise a length of V shaped plastics in which the jaws of the "V" may be moved apart in order to capture the gutter wall therebetween. Such material is sometimes used as a paper binding.

It is to be understood that the above described embodiment is by way of illustration only. Many modifications and variations are possible.

CLAIMS

1. An animal deterring apparatus comprising a plurality of elongate members arranged in the same general direction, said elongate members comprising a pointed part having a blunt end.
2. An animal deterring apparatus as claimed in claim 1, wherein the members are triangular in cross section.
3. An animal deterring apparatus as claimed in claim 1 or claim 2, wherein the apparatus comprises plastics.
4. An animal deterring apparatus as claimed in claim 3, wherein the apparatus is vacuum formed from plastics material.
5. An animal deterring apparatus as claimed in any preceding claim, wherein adjacent members are spaced apart by a distance in the range from 5mm to 2cm.
6. An animal deterring apparatus as claimed in any preceding claim, wherein the height of the members is at least 1cm.
7. An animal deterring apparatus as claimed in claim 6, wherein the height of the members is in the range of 1cm to 2cm.

8. An animal deterring apparatus as claimed in any preceding claim, wherein the apparatus comprises clamping means for securing the apparatus to another structure.
9. An animal deterring apparatus as claimed in any preceding claim, wherein each member comprises a support for mounting the apparatus on a further structure and a body mounted for movement about a pivot provided on the support.
10. An animal deterring apparatus comprising a support for mounting the apparatus on a further structure and a body mounted for movement about a pivot provided on the support.
11. An animal deterring apparatus as claimed in claim 9 or claim 10, wherein the body is mounted to the support via a pivot.
12. An animal deterring apparatus as claimed in any of claims 9 to 11, wherein the support is connected to the transverse centre of the body.
13. An animal deterring apparatus as claimed in any of claims 9 to 12, wherein the body comprises a diamond shaped head having a tip extending above the pivot.

14. An animal deterring device as claimed in any of claims 9 to 13, wherein the device comprises two limbs extending in opposite directions.

15. An animal deterring device as claimed in any of claims 9 to 14, wherein the support comprises a rod having a slit therein for receiving the body.

16. An animal deterring device as claimed in any of claims 9 to 15, wherein the support comprises a base part, the base part comprising means for connecting the apparatus to a further structure.

17. An animal deterring apparatus as claimed in any of claims 9 to 16, wherein the apparatus is located on a ridge tile.

18. An animal deterring apparatus as claimed in claim 17, wherein arms of the apparatus are arranged to extend parallel with the ridge tile.

19. An animal deterring apparatus as claimed in any of claims 9 to 18, wherein movement of the body is in the direction in which the arms extend.

20. An animal deterring apparatus as claimed in any of claims 9 to 19, wherein the movable body once moved

returns to its original stationary position.

21. An animal deterring apparatus substantially as described herein with reference to the accompanying drawings 1 to 4, 5 or 7 to 12.

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**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application number

GB 9219982.7

**Relevant Technical fields**

(i) UK CI (Edition K ) A1M (MBC) ; E1D (DF109)

(ii) Int CI (Edition 5 ) A01M

**Databases (see over)**

(i) UK Patent Office

(ii)

**Search Examiner**

K J KENNETT

**Date of Search**

6 JANUARY 1993

Documents considered relevant following a search in respect of claims 1 TO 9

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2249013 (SEWELL) whole document	1, 3, 5-7
X	GB 2194566 (HOLDEN) whole document	1-3, 8 and 9
X	GB 2185173 (SIMPSON) whole document	1, 8
X	GB 2153644 (SIRINS) whole document	1, 3, 4, 6, 8
X	GB 814298 (KAUFMANN) whole document	1
X	EP 0300936 (BAUDOIN) whole document	1, 3
X	US 4269008 (ASSOULINE) whole document	1-6

Category	Identity of document and relevant passages	Relevant to claim(s).

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